

AMENDMENTS TO THE CLAIMS

Q' 1. (Presently Amended) A substrate processing system comprising:
a plurality of processing units for performing predetermined processing for a substrate;
first and second processing units adapted to process a substrate by a first treatment and a
second treatment, respectively;
a transfer apparatus for transferring the substrate at least between said processing units; and
first image pickup means, provided on said transfer apparatus, for picking up an image of
the inside of said processing units
first image pickup means adapted to pick-up an image of a member of the processing units
or the substrate being placed in the processing units;
a transfer apparatus adapted to convey the substrate between the processing units and
including a substrate carrying arm adapted to hold the substrate when the transfer apparatus conveys
the substrate;
wherein the first image pickup means is mounted to the transfer apparatus such that the first
image pickup means moves together with the substrate carrying arm at least when the substrate
carrying arm is moving in a first direction.

2. (Presently Amended) The processing system as set forth in claim 1, ~~wherein said~~
~~processing unit is provided with second image pickup means for picking up an image of a portion~~
~~which said first image pickup means is unable to pick up~~ further comprising second image pickup
means, arranged in at least one of the processing units, for picking-up an image of said one of the
processing units or the substrate being placed in said one of the processing units which the first
image pickup means is incapable of picking-up.

3-6. (Cancelled)

7. (Original) The processing system as set forth in claim 1, wherein said first image pickup means comprises a plurality of kinds of image pickup apparatus.

Q' 8. (Presently Amended) The processing system as set forth in claim 1, wherein ~~said the~~ system ~~has is~~ configured so that the system can selectively be operated in an automatic mode for causing said first image pickup means to pick up an image of predetermined position in said processing unit in predetermined procedures and a manual mode for causing said first image pickup means to pick up an image of a desired position in said processing unit through manual running operations in which the first image pickup means picks-up an image of a predetermined member of at least one the processing units or the substrate located in said one of the processing units according to predetermined procedures, or in a manual mode in which the first image pickup means picks-up an image of a desired member located in at least one of the processing units or the substrate located in said one of the processing units according to manual operation procedures.

9. (Presently Amended) The processing system as set forth in claim 1, wherein ~~in said~~ processing units, there are liquid-system processing units each for performing liquid processing for the substrate and thermal-system processing units each for performing thermal processing for the substrate, the first processing unit is a liquid process unit configured to perform a liquid process by which the substrate is processed with a processing solution, and the second processing unit is a thermal process unit configured to perform a thermal process for the substrate,

~~and wherein said first image pickup means is used for monitoring processing processes for the liquid-system processing units and for monitoring a physical position of the substrate for the thermal-system processing units~~

said system further comprising:

means for judging whether process conditions of the liquid process performed by the liquid process unit is appropriate, and for judging whether the substrate is appropriately held in place by a substrate holder provided in the thermal process unit, based on an image picked-up by the first image pickup means.

10. (Cancelled)

11. (Cancelled)

12. (Presently Amended) The substrate processing system as set forth in claim 1, wherein ~~said processing unit has a spin chuck rotating while holding the substrate and having a rotation shaft and a nozzle for supplying a processing solution nearly onto the center of the held and rotated substrate, and the first processing unit includes:~~

a spin chuck adapted to rotate while holding the substrate and having a rotation shaft; and
a nozzle adapted to supply a processing solution onto a center of a surface of the substrate
held by the spin chuck;

a wherein said system has means for monitoring whether or not the processing solution is supplied nearly onto the center of the substrate based on an image pickup result by said first image pickup means

said system further comprising:

means for judging whether the nozzle supplies the processing solution onto the center of the substrate held by the spin chuck based on an image picked-up by the first image pickup means.

13. (Cancelled)

14. (Cancelled)

15. (Presently Amended) The substrate processing system as set forth in claim 1, wherein ~~said processing unit includes a spin chuck rotating while holding the substrate and a nozzle for supplying a processing solution nearly onto the center of the held and rotated substrate, the first processing unit includes:~~

a spin chuck adapted to rotate while holding the substrate ; and
a nozzle adapted to supply a processing solution onto a center of a surface of the substrate
held by the spin chuck;

~~wherein said first image pickup means picks up an image of the tip of the nozzle, and~~

~~wherein said system has means for monitoring whether or not a liquid drip appears at the tip of the nozzle based on an image pickup result by said first image pickup means~~

said system further comprising:

means for judging whether a drip of the processing solution appears at a tip of the nozzle based on a image picked-up by the first image pickup means.

Q! 16. (Presently Amended) The substrate processing system as set forth in claim 1, wherein ~~said processing unit include a spin chuck rotating while holding the substrate and a nozzle for supplying a processing solution nearly onto the center of the held and rotated substrate,~~ the first processing unit includes:

a spin chuck adapted to rotate while holding the substrate ; and

a nozzle adapted to supply a processing solution onto a center of a surface of the substrate held by the spin chuck; and

wherein the first image pickup means has a laser displacement measurement apparatus for monitoring an extending state of the processing solution supplied onto the held and rotated substrate includes a laser displacement measurement apparatus adapted to recognize an image of an periphery of the processing solution spreading outwardly on a surface of the substrate by a centrifugal forth when the substrate is being rotated by the spin chuck.

17. (Presently Amended) The substrate processing system as set forth in claim 1, wherein ~~said the second processing unit has a processing plate for performing heating or cooling processing for the substrate adapted to heat or cool the substrate,~~

~~wherein said first image pickup means picks up an image of the substrate on the processing plate, and~~

~~wherein said system has means for monitoring whether or not the substrate is placed on the processing plate based on an image pickup result by said first image pickup means~~

said system further comprising:

means for judging whether the substrate is appropriately placed on the processing plate based on an image picked-up by the first image pickup means.

18. (New) The system according to claim 1, wherein the first image pickup means is integrally attached to the substrate carrying arm so as to move together with the substrate carrying arm in any direction.

19. (New) The system according to claim 1, wherein the transfer apparatus further includes:
a base to which the substrate carrying arm is mounted;
a support member mounted to the base and supporting the first image pickup means;
a vertical moving mechanism adapted to move the base in a vertical direction;
a first horizontal moving mechanism adapted to move the substrate carrying arm in a horizontal direction relative to the base to allow the substrate carrying arm to access the processing units; and

a second horizontal moving mechanism adapted to move the support member in a horizontal direction relative to the base to allow the first image pickup means to access the processing units.

20. (New) The processing system as set forth in claim 1, wherein said image pickup means comprises a CCD camera.

21. (New) The processing system as set forth in claim 20, wherein the CCD camera is mounted to the transfer apparatus via a turn drive mechanism adapted to turn the CCD camera about a vertical axis.

22. (New) The processing system as set forth in claim 20, wherein the CCD camera is mounted to the transfer apparatus via a tilting mechanism adapted to tilt the CCD camera downwards.

23. (New) The processing system as set forth in claim 21, wherein the CCD camera and the turn drive mechanism are mounted to the transfer apparatus via a horizontal moving mechanism

adapted to move the CCD camera horizontally to allow the CCD camera to access the processing units.

24. (New) The processing system as set forth in claim 9, wherein the judging means is configured to judge the process conditions based on a image of a surface of the substrate picked-up by the first image pickup means.

Q! 25. (New) The processing system as set forth in claim 24, wherein the judging means is configured to judge the process conditions based on a color tone or a color shading in the surface of the substrate.

26. (New) The processing system as set forth in claim 12, wherein:
a line extending parallel to a rotational axis of the spin chuck is drawn on a circumferential surface of the rotation shaft; and
the judging means is configured to judge whether the nozzle is located in a position where the nozzle supplies the processing solution onto the center of the surface of the substrate based on a positional relationship between the line and the nozzle which is determined based on an image picked up by the first image pickup means.

27. (New) The processing system as set forth in claim 12, wherein the judging means has a function of determining whether the first image pickup means is in focus on a target, and the judging means is configured to judge whether the nozzle is in a position where the nozzle supplies the processing solution onto the center of the substrate, based on a focusing condition of an image of the processing solution picked-up by the first image pickup means.
